ATOP-R&D

Human Factors Newsletter # 04-10

May 8, 2004 – May 21, 2004

Note: The Human Factors Newsletter is accessible at:

http://www.hf.faa.gov/docs/508/docs/newsletters/newsletter_0410.pdf

Previous Human Factors Newsletters are accessible at:

http://www.hf.faa.gov/newsletter.htm

Beginning in July 2004, we'll be sending you an e-mail link to the online HF Newsletter instead of sending you a Word file attachment. During the transition period, we'll send you an e-mail with the HF Newsletter attached (as before) along with a link to the new online HF Newsletter. Please let me know if you have problems accessing the HF Newsletter via the provided link.

Technical Information: In May, ATOP-R&D will award a collaborative research grant to the University of Illinois, Champaign-Urbana entitled "National Airspace Human Factors Integration Plan for Unmanned Air Vehicles (UAV): An Evaluation of Human Factors Research Issues". Below is a summary of the grant:

UAVs are quickly becoming a part of the National Airspace System (NAS) as they transition from primarily military and hobbyist applications to mainstream flight applications such as surveillance, advertising, cargo hauling, and crop dusting. To prepare the FAA for handling the integration of these aircraft into the NAS, research is needed to look at important human factors issues associated with operator qualifications, operator training, aircraft and ground control station maintenance, hardware and software for these aircraft and their ground control stations, and air traffic control requirements.

The FAA, NASA's Access 5, DoD, ICAO, and Civil Aviation Safety Authority Australia have formed study groups to recommend policies, procedures, and approval processes that will allow safe and reliable operation of UAVs. Members of these groups acknowledge that the operator is the critical component in the system, however the vast amount of resources have been spent on airworthiness issues. In order for the FAA to achieve the Flight Plan 2004-2008 goal for

increased safety, human factors issues must be addressed before the FAA embarks on UAV rulemaking.

Analysis of UAV piloting tasks, based upon interviews with military pilots and reading existing UAV human factors literature, reveals three major human factors issues to be addressed by this research: (1) operator crew complement, automation, interface, (2) selection, training, qualification, and (3) NAS integration. Results of this research will be important to the FAA in developing a five-year human factors integration plan. It is hypothesized that many human factors lessons learned from manned aircraft flight will be relevant, but there are many unique aspects of UAV flight, some of which are suggested above, that will require a specific program of research in order to fill gaps in knowledge of UAV human factors issues.

Point of Contact: W. Krebs, ATOP-R&D

HSIAC: The Human Systems Information Analysis Center (HSIAC) publishes a quarterly Gateway Newsletter of human factors-related articles. The current issue is available at: http://iac.dtic.mil/hsiac/GW-docs/gw_xiv_4.pdf

The HSIAC home page for the Gateway Newsletter and other information is at: http://iac.dtic.mil/hsiac/Gateway.htm

Point of Contact: P. Krois, ATOP-R&D

RNAV: On April 16th, human factors researchers met with Air Traffic, NATCA, and Airway Facilities representatives from Northern California TRACON (NCT) to finalize logistics plans for a human factors study of a proposed Area Navigation (RNAV) approach to San Francisco International Airport. A Western Pacific regional air traffic representative and a pilot from Alaska Airlines were also in attendance. The human-in-the-loop simulation will examine two different orientations for the non-transgression zone, as well as two communications configurations. It will utilize a portable version of the Distributed Environment for Simulation Rapid Engineering and Experimentation (DESIREE) Air Traffic simulator and the Target Generation Facility (TGF). The study was originally scheduled to be conducted at NCT between May 17th and May 21st, however a delay has occurred, and the study will be rescheduled for June 2004. (E. Stein, WJHTC)

CAMI News:

- In June, Dr. Boquet and Ms. Detwiler will be collecting data from selected general aviation maintenance facilities to identify human factors issues unique to Alaskan maintenance.
- On June 4th, Dr. Shappell will present the keynote address at the Spectacular Seaplane Seminar, a meeting of the Seaplane Pilots Association in Spectacular, NY. The title of the presentation will be "Aviation Accident Intervention Strategies: Are We Using a Screwdriver to Pound in Nails".

Terminal Area: Representatives from the William J. Hughes Technical Center, CAMI, Terminal Business Service, ATB, and ATOP-R&D participated in a meeting to define human factors research requirements in the terminal area (tower and TRACON). The meeting began with the researchers briefly describing their current and recent efforts in terminal systems and procedures. The ATB representatives then presented their current issues, which include using Airport Surface Detection Equipment (ASDE-X) to support a strip-less tower, Standard Terminal Automation Replacement System (STARS)/Controller Awareness and Resource Training (CARTS) common color palettes, ICAO data-block requirements, integration of terminal systems, operational error reductions, use of terminal separation criteria for more airspace (especially in the northeast and west coast), airspace reconfiguration, National Airspace System change proposal evaluation, staffing issues, and metrics to support business cases. Additional requirements were also discussed. ATOP-R&D collected the information and will produce a listing of needs for prioritization. (E. Stein, WJHTC)

Air Traffic: The Human Factors Group at the William J. Hughes Technical Center hosted a technical information exchange meeting with Joe Pino, En Route Automation Program (ERAM) Controller-Pilot Data Link Communications (CPDLC) program manager. Drs. Carol Manning and Pam DellaRocco provided research overviews for CAMI and the Technical Center respectively. Mr. Pino presented an ERAM status update. Various participants provided summaries of research completed or in progress. Ben Willems described the role of eye-tracking in Air Traffic research, and Dr Manning summarized her work in flight progress information. Dr. Randy Sollenberger presented an overview of studies on the collocation of three free flight systems: User Request Evaluation Tool (URET), Traffic Management Advisor (TMA) and CPDLC. He also provided a description of current work in progress on dynamic resectorization. Dr. Todd Truitt briefed the results of a simulation study of the proposed NY Integrated Control Center. Mr. Willems provided a technical presentation on current research regarding the Future En Route Workstation, describing requirements and proposed decision support automation. The meeting closed with a discussion of views on the long range en route research program. (E. Stein, WJHTC)

Aerospace Medical Association: CAMI Aeromedical Research personnel participated in the 75th Annual Scientific Meeting of the Aerospace Medical Association held in Anchorage, AK on May 3-6. Nine scientific presentations were made:

Lewis, Johnson	Formation of Ethanol in Postmortem Tissues from Aviation Accident Victims
Johnson, Lewis, Canfield	The Determination of Ethanol Origin in Fatal Aviation Accident Victims: A Case Study
Chaturvedi, Craft, Akin, Canfield, Soper	First-Generation H1 Antihistaminics Found in Pilot Fatalities of 1990-2002 Civil Aviation Accidents
Corbett, McLean	Passenger Safety Awareness: Still Ignorant After All These Years

McLean, Corbett	Simulated Ditching: Evacuations into Water
Nakagawara, Montgomery, Dilland, McLin, Connor	The Effect of Laser Illumination on Operational and Visual Performance of Pilots During Final Approach
DeJohn, Wolbrink Larcher	Safety Centers Year in Review
DeJohn, Wolbrink, Larcher	Accident Experience of Cardiac Special Issuance Pilots 1990-1999
Veronneau Rogers Peterman	Panel: Internet and Information Technology Practical Applications, Bioinformatics Internet Skills

Point of Contact: L. Samuel, CAMI

ATC Displays: Research Psychologists from the NAS Human Factors Group (ACB-220) briefed Air Traffic Control Specialists from the Air Traffic Control System Command Center on implementation of the Collaborative Convective Forecast Product (CCFP) as seen on the Traffic Situation Display (TSD). Included was a demonstration of prototyped TSD displays that illustrate several concepts for coding CCFP data. Some of the issues that were discussed addressed display clutter and the effectiveness of the various coding schemes. (K. Allendoerfer, T. Yuditsky, WJHTC)

DOD Human Factors Engineering (HFE) Technical Advisory Group Meeting: The FAA hosted the 51st meeting of the DOD HFE Technical Advisory Group in Atlantic City N.J., May 10-13. Dr. Anne Harlan welcomed the group and provided an overview of the William J. Hughes Technical Center. Presentations and activities included the following:
- Plenary Session
    - Air Traffic Human Factors Research Program Overview – Dino Piccione
    - Human Factors in the Standard Terminal Automation System – Mike McAnulty and Kenneth Allendoerfer
    - Military, Commercial, and General Aviation: Have We Invented New Ways to Crash Planes? – Scott Shappell
    - Transportation Security Administration Human Factors Research and Development Program Overview – Michael Snyder

- Chaired Subcommittees:
    - Human Factors Standardization – Alan Poston
    - Sustained/Continuous Operations – Tom Nesthus

- Laboratory Tours

- o Security Optimization Human Factors Integration and Evaluation (SOHFIE) Laboratory – Eric Neiderman, Manager HF Research and Development, Transportation Security Laboratory
- o Research, Development, and Human Factors Laboratory (RDHFL) – Mike McAnulty, Pam DellaRocco, and Vicki Ahlstrom, Team Lead overviews

Point of Contact: Tom McCloy, ATOP-R&D

Cognitive Task Analysis (CTA) Seminar: On May 19, 2004, Dr. Gary Klein of Klein Associates presented a seminar on "Cognitive Task Analysis in the ATC Environment" sponsored by the Human Factors Research and Engineering Division under the auspices of the Intellectual Capital Investment Program (ICIP). Approximately 40 attendees (primarily human factors professionals) participated in the seminar which covered a wide range of topics including: CTA history, inputs and outputs for CTA, how CTA relates to other techniques, phases of CTA, and lessons-learned about CTA. The program was conducted to provide technical training to the acquisition work force on a topic of special interest to the human factors community. The goal was to improve job performance by ensuring that participants will be able to: (1) Understand the role that CTA can play in ATC system design, (2) Recognize how to prepare for a project using CTA, (3) Know theory and methods for eliciting knowledge and expertise, and analyze and represent data, and (4) Know how to apply CTA and conduct human factors engineering tasks with this technical tool. The seminar was extremely well presented and received. (Glen Hewitt, ATOP, R&D)

FAA Excellence in Aviation Award: The FAA has issued a call for nominations for its annual Excellence in Aviation Award. Through this award, the FAA acknowledges the valuable contributions of its external research partners and formally recognizes significant aviation research and development accomplishments. This non-monetary award augments the ability of the FAA to recognize superior research efforts and to highlight the benefits of those activities. The nomination period is open through June 15, 2004. For additional information, please see http://research.faa.gov

More information on human factors research can be found at
the FAA Human Factors (AAR-100) web site: http://www.hf.faa.gov

Mark D. Rodgers
FAA (AAR-100)

 CALENDAR

May 23-26, 2004 – Tenth International Conference on Mobility and Transport for Elderly and Disabled People, Hamamatsu, Japan http://trb.org/calendar/

May 25, 2004 - Human Factors Integration Symposium, MoD, Abbey Wood, Bristol, UK http://hfetag.dtic.mil/docs/HFI-Symposium-Flyer.doc

May 26-27, 2004 – Royal Aeronautical Society Conference – Flight Simulation 1929-2029, A Centennial Perspective, London, UK *http://www.aerosociety.com/homepage.asp*

June 7-11, 2004 – 2004 US/Europe International Aviation Safety Conference (FAA/JAA), Philadelphia, PA *http://www.jaa.nl/conference/20th/closing.html*

June 10, 2004 – FAA Human Factors Acquisition Working Group Meeting, Room 932, FOB10A, Wash., DC mailto:glen.hewitt@faa.fov

June 15-17, 2004 – SAE Digital Human Modeling for Design and Engineering Meeting, Oakland University, Rochester, Michi*gan http://www.sae.org/calendar/aeromtgs.htm*

June 22-24, 2004 – Civil/Military ATM Conference, Warsaw, Poland *http://www.atca.org/event_items.asp*

July 8, 2004 - Human Factors Tool Symposium, Orlando, Florida http://hfetag.dtic.mil/docs/NASA-Tools-Workshop.doc

June 12-16, 2004 – National Cargo Security Council 2004 Annual Conference and Exhibition, Riviera Hotel & Casino, Las Vegas, NV http://www.cargosecurity.com

July 15, 2004 – Deadline for papers - 13th Annual Symposium on Aviation Psychology (ISAP), Civil Aerospace Medical Institute (CAMI), Oklahoma City, OK, April 18-21, 2005.. *http://www.cami.jccbi.gov/*

July 19-25, 2004 – Farnborough International 2004, Farnborough Aerodrome, England *http://www.farnborough.com/*

July 22-August 2, 2004 – 52nd Annual EAA AirVenture Fly-In, Wittman Field, Oshkosh, WI *EAA AirVenture Oshkosh 2004*

July 27-August 2, 2004 – 52nd Annual AirVenture, Oshkosh, WI http://airventure.org/

July 28 – August 1, 2004 – 112th Convention of the American Psychological Association. Honolulu, Hawaii http://www.apa.org/convention

August 1-4, 2004 – Designing Interactive Systems, Cambridge, MA *http://www.sigchi.org/DIS2004/*

August 8-12, 2004 – 31st International Conference on Computer Graphics and Interactive Techniques, Los Angeles Convention Center, Los Angeles, CA
http://www.vr.clemson.edu/eyetracking/etra/2004/

August 16-19, 2004 - 6th Workshop on Risk Analysis and Safety Performance Measurements in Aviation, Crystal City, VA. *http://aar400.tc.faa.gov/AAR424/Workshop2004/*.

August 23-27, 2004 - SAE G-10 Human Behavioral Performance Committee Semiannual Meeting, Seattle, WA http://www.sae.org/standardsdev/aerospace/g10tag.htm

September 8-9, 2004 – Civil Aviation Safety Symposium 2004, Westin Hotel Galleria, Dallas, TX *http://www.asdnet.org/cass/default.htm*

September 14-17, 2004 – 22nd International Air Cargo Forum and Exposition, Basque Country, Spain http://www.tiaca.org

September 14-17, 2004 – National Cargo Security Council 2004 Conference & Exhibition, Riviera Hotel & Casino, Las Vegas, NV http://www.cargosecurity.com

September 19-20, 2004 – Association for the Advancement of Medical Instrumentation AAMI/HE Human Factors Engineering Committee Meeting, New Orleans, LA ntongson@aami.org

September 20-24, 2004 – Human Factors and Ergonomics Society 48th Annual Meeting, Sheraton New Orleans Hotel, New Orleans, LA http://www.hfes.org/

September 27-29, 2004 – SAFE Association 42nd Annual Symposium, Grand America Hotel, Salt Lake City, UT *http://www.safeassociation.com/symposium.htm*

September 29 – October 1, 2004 – 2004 International Conference on Human Computer Interaction (HCI-Aero), Toulouse, France
http://www.eurisco-international.com/hci-aero2004.

October, 2004 – 18th Airbus/JetBlue Human Factors Symposium, New York City, NY
http://www.airbus.com/customer/events.asp

October 4-7, 2004 – SAE SEAT – Aircraft Seat Committee Meeting, Albuquerque, NM
mlemank@sae.org

October 10-16, 2004 – ACM Multi-Media 2004, New York, NY http://www.mm2004.org/

October 12-14, 2004 – Shared Vision of Aviation Safety Conference, San Diego, CA
http://www.aviationsafetyconference.com/index2.html

October 12-14, 2004 – 57th Annual Business Aviation Association Meeting and Convention, Las Vegas County Convention Center, Las Vegas, NV *http://web.nbaa.org/public/cs/amc/*

October 13-15, 2004 – Sixth International Conference on Multimodal Interfaces, Penn State University, State College, PA http://www.icmiplace.org/

October 18-19, 2004 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington, DC *http://wwwsearch.nationalacademies.org/*

October 21-23, 2004 – Aircraft Owners and Pilots Association Expo 2004, Long Beach Convention and Entertainment Center, Long Beach, CA *http://www.aopa.org/expo/2003/virtual/*

October 23-27, 2004 – NordiCHI 2004, Tampere, Finland *http://www.cs.uta.fi/nordichi2004/*

October 24-27, 2004 – UIST 2004, 17th Annual ACM Symposium on User Interface Software and Technology, Santa Fe, NM http://www.acm.org/uist/

October 25-28, 2004 – SAE S-9 Cabin Safety Technical Committee Meeting, San Diego, CA mlemank@sae.org

October 25-28, 2004 – DoD Maintenance Seminar and Exhibition, Hilton Americas, Houston, TX *http://www.sae.org/calendar/aeromtgs.htm*

October 27-29, 2004 – Human Factors and Ergonomics Society Europe Chapter Annual Meeting, Delft University, the Netherlands http://utopia.ision.nl/users/hfesec/meeting/ec_meet.htm

October 31, 2004 – ATCA Annual Conference and Exposition, Marriott Wardman Park Hotel, Wash., DC *http://www.atca.org/event_items.asp#*

November 1-4, 2004 – DOD Human Factors Engineering Technical Advisory Group Meeting, Holiday Inn Select, Alexandria, VA http://hfetag.dtic.mil/meetschl.html

November 4-5, 2004 – Royal Aeronautical Society Seminar Human Factors Training in Aviation Maintenance, RAF Bentley Priory, Stanmore, near Watford, North London *http://www.raes-hfg.com/xmhftraining.htm*

November 8-9, 2004 – European Aviation Training Symposium, Vienna, Austria http://www.at-events.com/eats/conference.asp

November 15-18, 2004 – 57th Annual International Air Safety Seminar ("Sharing Knowledge to Improve Safety"), Pudong Shangri-La Hotel, Shanghai, China http://www.flightsafety.org/seminars.html

January 9-13, 2005 – TRB 84th Annual Meeting, Washington, DC http://trb.org/calendar/

January 28, 2005 – Deadline for papers - 6th USA/Europe ATM Seminar, Baltimore, MD, June 2005 http://atmseminar.eurocontrol.fr/

April 11-15, 2005 – SAE 100th Anniversary World Congress, Cobo Hall, Detroit, MI
http://www.sae.org/congress/about/news/congressdates.htm

April 17-22, 2005 – International Federation of Air Traffic Controller's Associations, Melbourne, Australia *http://www.ifatca.org/conferences/annual_conference.htm*

April 18-21, 2005 – 13th Annual Symposium on Aviation Psychology (ISAP), Civil Aerospace Medical Institute (CAMI), Oklahoma City, OK (note: call for papers deadline is July 15, 2004). http://www.cami.jccbi.gov/

May 9-12, 2005 - 76th Annual Scientific Meeting of the Aerospace Medical Association, Kansas City, MO *http://www.asma.org/*

June 2005 – 6th USA/Europe ATM Seminar, Baltimore, MD (note: call for papers deadline is January 28, 2005) http://atmseminar.eurocontrol.fr/

August 18-21, 2005 - 113th Convention of the American Psychological Association, Wash, DC http://www.apa.org/convention

September 12-16, 2005 – Interact 2005, Tenth IFIP TC13 International Conference on Human-Computer Interaction, Rome, Italy http://www.interact2005.org/

September 26-30, 2005 – Human Factors and Ergonomics Society 49th Annual Meeting, Royal Pacific Resort at Universal Orlando, Orlando, FL *http://hfes.org/meetings/menu.html*

October 24-25, 2005 – National Academies Institute of Medicine Annual Meeting, National Academy of Sciences, Washington*, DC http://wwwsearch.nationalacademies.org/*

January 22-26, 2006 – TRB 85th Annual Meeting, Washington, DC http://trb.org/calendar/

Note: Calendar events in Italics are new since the last Newsletter

Comments or questions regarding this newsletter?
Please contact Bill Berger at (334) 271-2928
or via e-mail at bill.ctr.berger @faa.gov